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The global competition for talent: Life science and biotech careers, international mobility, and competitiveness

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Publication date

2015

Document Version

Final published version

[Link to publication](#)

Citation for published version (APA):

Kuvik, A. N. (2015). *The global competition for talent: Life science and biotech careers, international mobility, and competitiveness*. [Thesis, fully internal, Universiteit van Amsterdam].

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CHAPTER 2: SKILLED MIGRATION AND THE GLOBAL COMPETITION FOR TALENT – RECENT DEVELOPMENTS AND THEORETICAL CONSIDERATIONS²

This quote was part of the findings on global migration from the Gallup organization, which conducts some of the largest-scale polls globally:

What the whole world wants is a good job. That is one of the single biggest discoveries Gallup has ever made. It is as simple and as straightforward an explanation of the data as we can give. If you and I were walking down the street in Khartoum, Tehran, Berlin, Lima, Los Angeles, Baghdad, Kolkata, or Istanbul, we would discover that on most days the single most dominant thought carried around in the heads of most people you and I see is, “I want a good job.” It is the new current state of mind, and it establishes our relationship with our city, our country, and the whole world around us [...]” (p.3)

The shift in importance to “a good job” leads to a significant change in the evolution of civilization. There are endless indicators, but the most evident change is in global migration patterns (Clifton, 2007, pp. 3, 4).

Yet, the quote above was written even before the global economic crisis put being able to offer ‘good’ jobs as the top political priority across the world and still states the importance of global migration. Supporting economic growth and availability of jobs has long been one of the primary tasks of politicians, and the lack of jobs plus better opportunities elsewhere have long been seen as the primary push and pull factors for immigration.

This chapter will discuss research for understanding skilled migration. The chapter begins by discussing the most prominent definitions of skilled migration. It then will give an overview of recent developments for skilled migration, discussing the increasing flows and background of the changing policy concerns in the past few decades. Following this overview, a few of the main theories, mainly drawing on more general theories for labor migration, will be discussed as they apply to understanding skilled migration. The next section will discuss new paradigms that are emerging to explain skilled migration, particularly the phrase the global competition for talent and views of effects of skilled migration as a contributor to human capital and international development.

² This chapter appears in a similar form in Kuvik, A. (2012). *Skilled Migration in Europe and Beyond: Recent Developments & Theoretical Considerations*. In M. Martiniello & J. Rath (Eds.), *An Introduction to International Migration Studies: European Perspectives* (pp. 211-236). Amsterdam: IMISCOE Textbook Series.

SKILLED MIGRATION: DEFINITIONS, STATISTICS, AND TYPOLOGIES

Like all immigration categories, there is not one strict definition of a ‘highly skilled’ migrant internationally, but rather it depends on the local economic, social, and demographic contexts and the local concerns and the policies in place. In the migration literature, skilled migrants are often defined as individuals with a tertiary degree or higher. Additionally, skilled migration may be defined on the basis of the policy in place and hence the type of visas and permits issued³. However, policy-based definitions do not look at the sector of employment or give any indications of employment among other skilled individuals. For instance, ‘deskilling’ may occur, for instance as seen when highly qualified refugees work below their qualifications or as recently observed in one of the prominent mobility patterns whereby university graduates from the new EU member states in Central and Eastern Europe work temporarily in low-skilled jobs, particularly in the UK, which means there can be a mismatch between academic discussions of the ‘skilled’ and the official statistics. Another way to look at skilled migrants is in terms of occupation. This can be done broadly in terms of ‘professionals’ or, as is recently becoming prominent, in terms of ‘talent’ (for example Kuptsch & Pang, 2006; Shachar, 2006; Zalatel, 2006). Solimano (2008) further says that within these main classifications, a few specific occupations of interest emerge: “technical talent, scientists and academics, professionals in the health sector—medical doctors and nurses, entrepreneurs and managers, professionals in international organizations; and cultural talent” (p. 22). Additionally, it should be noted that foreign-born entrepreneurs and students are also often included in discussions of skilled migrants.

Definitions of ‘skilled’ migration change across *time and place*. In other words, “skilled” is a relative term, dependent on the demographics and qualifications of the greater society, and skills that are currently in demand. Currently, there seems to be a shift away from defining ‘skilled’ migrants in terms of educational qualifications and instead a move towards focusing on occupation (managers, healthcare workers, scientists and other workers for the knowledge economy); many national immigration policies to support skilled migration in Europe tend to focus on labor market demands. In general, statistics for various job classifications have not been harmonized. For instance, although the mobility of health care workers has long been a topic of global concern, the Dumont & Zurn (2007, p. 164) reports,

Discussions on the international mobility of health professionals are severely hampered by data limitations, including ambiguity in data sources and definitions of health worker migrants, or excessive reliance on indirect quotations. These limitations are particularly acute when one seeks to make international comparisons. To a certain extent, this has contributed to confuse the debate on international mobility of health workers.

³ See EMN (2007) page 27 for an overview of these policy categories for skilled migration in Europe

In order to conceptualize skilled migration broadly and theoretically, in a potentially lasting framework, there is a need to extend beyond the technicalities and nuances of categorical definitions to see broader patterns and implications. Where data is collected, it often does not indicate which sectors an individual is employed in. However, efforts have been made to improve data on this topic, for instance through the OECD's Database on Immigrants and Expatriates, the first comparative database on this topic which has been operational since 2005 (see Dumont & Lemaitre, 2005). Data on international student mobility has been standardized jointly by UNESCO, OECD, and Eurostat, new interest is emerging for more specific topics, such as careers of doctorate holders (Auriol, 2010; Auriol, Felix, & Fernandez-Polcuch, 2007).

Flows of skilled migration in Europe as compared to classic immigration countries

While a detailed statistical overview of the various classifications of skilled migration in various countries is outside the scope of this chapter, it is nonetheless important to understand generally how skilled migration has progressed in Europe and how it compares in magnitude to other migration flows.

Skilled migration has only recently become a topic of interest to policymakers and academics in Europe. Although skilled migration is not new, it has demonstrated substantial increases in recent years as seen both in statistics (see Tables 2 and 3) and in the increasing variety of countries and types of policies supporting skilled migration. In reviewing the literature, a few notable trends can be seen in the development of skilled migration policies, processes, and paradigms. Much of the research that does exist on skilled migration can be said to be based on the extremes – on one side focusing on studies from the 'immigration countries' (US, Canada, Australia, and New Zealand), which have longer histories of receiving immigrants in general as well as have had earlier adoption of specific skilled migration policies and programs and on the other side on countries seen to be suffering from an acute 'brain drain' or on countries that are benefiting from a 'brain circulation' (FierceBiotech.com, 2009; Kapur & McHale, 2005), with China and India drawing a substantial amount of attention. While these cases are clearly important in understanding the most prevalent forms and the strongest effects of skilled migration, they also only give a partial picture of the 'global' element in the competition for talent and the situation in many European states, with more cautious approaches to immigration, is less studied and understood.

In tracing the development of skilled migration and policies historically, a few main turning points can be discerned that link current thinking on skilled migration. The first of these is the movement of scientists to the United States, following the World Wars and the development of military technologies (also said to be an important influence on the US's current strength in the IT sector) during the Cold War. Notably, this development spawned the initial discussion of 'brain drain,' which remains an important element in discussions on skilled migration. A second important development is linked with the internationalization of business, including increasing foreign direct investment, particularly in the 1980s. The migration of business professionals in the 1970s appears to have been quite low (Salt, 1983-1984). However, as companies began setting up affiliated branches in other geographic regions, it became more prominent for managers to move abroad as part of the career ladder. Skilled migration gained force in the

1980s and seems to have been largely tied with either intra-corporate movements or free trade agreements (for example the North American Free Trade Agreement or the European Economic Community). Therefore, the flows were predominantly between advanced economies. Global business operations underwent several shifts in the mid-1980s to early 1990s that have impacted policies, including the growth of business services in the economy and multinational corporations' further expansion and subcontracting of work in other countries. In 1986, the GATS discussion began under the auspices of the WTO to advance trade in services, which further facilitated global legislation to allow short-term business stays and potentially this also helped broaden skilled migration from being primarily for managers to incorporating less senior professionals, more job types, and all sizes of firms, although few studies seem to record this aspect (for discussion of impact of GATS on global governance of skilled migration see Lavenex, 2007). In the early 1990s, a marked shift in policies occurred in the (so-called) immigration countries to further facilitate the movement of skilled professionals and recognition of a growing trade in high-skilled services internationally. One of the most important developments was the US's expansion of the quota of the H1B (temporary) visa for specialty occupations, largely IT and other knowledge-based jobs, from 65,000 to 115,000 between fiscal years 1999 and 2000 (Kapur & McHale, 2005, p. 55). The demand for the IT workers was also a very time-specific response to fears of adverse Y2K computing problems (Kamat, Mir, & Mathew, 2004, pp. 15-16). In 2000, the quota was subsequently raised again, to 195,000 per year for fiscal years 2001, 2002, and 2003, notably within a law bearing the name "American Competitiveness in the Twenty First Century Act of 2000." While the name of this act is often not cited, it seems to be an important indicator of the changing rhetoric related to skilled migration and its association with competitiveness. The quota increases were the direct result of lobbying by the IT industry (Freeman & Hill, 2006; Rodrik, 2001). Additionally, the rising quota not only placed more emphasis on the political agenda in the United States, but that by the mid-1990s, other countries such as Australia, New Zealand, and the United Kingdom also were attracting more skilled immigrants, although with much lower absolute levels, on a temporary basis, as demonstrated in Table 3.

The mid-1990s was an important period largely because of the IT boom, associated productivity growth and the resulting policy focus on the knowledge economy. This period can be seen as the beginning of an important change, even a paradigm shift, as skilled migration increasingly became associated with economic competitiveness and the emergence of subsequent discussions of a 'global competition for talent' in the academic literature (for example Kuptsch & Pang, 2006; Shachar, 2006; Zalatel, 2006), media (See Bauder, 2008 for discussion of skilled immigration in media in Germany), and policy documents. Large amounts of interest have been generated by the particular example of the successful Silicon Valley, California's leading IT cluster, particularly building on the research of Saxenian (2005; 2008). However, this learning likely cannot be directly transferred due to policy differences and particularities of the area/industry, which allowed for extremely high levels of immigrant involvement -- 32% of the science and engineering workforce (Saxenian, 1999, p. viii) and 25% of the entrepreneurs in by 1999 (p. 20). Furthermore, as Freeman and Hill (2006, p. 7) argue that the changes in the US were not made with the global situation in mind:

National politics, rather than global economic pressures, drive the twists and turns of U.S. immigration policies, with key roles being played by high tech employers, professional associations, pro and anti-immigrant organizations, and even associations of immigration lawyers. There appears to be little space in their accounts for the kind of global legal/institutional influences signaled by WTO reforms or by the importance of global multinationals.

The burst of the IT bubble and the claims of a labor surplus in many areas did not seem to limit the associations between immigration and competitiveness, at least not internationally. Rather, it seems to have led to a new period where immigration became seen as a contributor to the broader ‘knowledge economy’ in general and therefore for a set of occupations that are both ever-changing in the skills required and for specific ‘new’ sectors which governments across the advanced world were offering policy support. Doudeijns & Dumont (2003, p. 31) made an interesting classification in the early 2000s of policy approaches taken towards labor migration in many of the OECD countries. Their compilation supports that much of the desired labor migration was for skilled occupations. Programs varied from points-driven to attract individuals with desirable characteristics, to those based on specific occupations or shortages, and finally those driven by international trade agreements. Many of the programs adopted were for temporary migration to fill expected labor shortages, and ranged from being regulated by the employer to the national government to international agreements.

TABLE 2 ADMISSION OF SKILLED IMMIGRANTS IN SELECTED COUNTRIES, 1991, 1999, 2001

<u>Country</u>	<u>Number (thousands)</u>			<u>Share of all immigrants (%)</u>		
	<u>1991</u>	<u>1999</u>	<u>2001^a</u>	<u>1991</u>	<u>1999</u>	<u>2001</u>
Australia ^b	41	35	54	37	42	60
Canada ^c	41	81	137	18	47	55
New Zealand ^d	na	13	36	na	47	68
United States	12	57	175	18	22	17
Sweden	0	3	4	6	8	10
United Kingdom	4	32	40	7	33	32

Source: Kuptsch & Fong 2006, p. 14, cites sources as Table II.1.2 in UN Department of Economic & Social Affairs, *World Economic and Social Survey 2004. International Migration*, New York.

^a Data for United States referring to 2002

^b Skilled category including family members with certain tested professional qualifications and linguistic aptitudes

^c Skilled workers category including assisted relatives who are not points tested

^d Employment-based preference category including family members of skilled workers

TABLE 3 TEMPORARY WORKERS ADMITTED UNDER SKILL-BASED CATEGORIES
SELECTED COUNTRIES, 1992-2000

<u>Country</u>					
	<u>Thousands</u>				
	<u>1992</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
Australia	41	82	93	100	116
Canada	70	75	80	85	94
New Zealand		27	30	39	48
United States*	143		343	423	505
France	5	5	4	6	8
United Kingdom	54	80	89	98	124
Source: Kuptsch & Fong 2006 p. 15					
* Number of admissions under H1-B visas, not number of persons					

Academic literature: Skilled migration in Europe

The skilled migration literature for business demand⁴ (discussion of skilled migration for services such as health care or education are not included here) in Europe therefore follows similar trends. There was little attention to the topic before the mid-1990s, with a few exceptions focused on managers and international corporations (Findlay, 1990; Salt, 1983-1984). By the late 1990s and early 2000s, the topic of skilled migration in Europe was gaining attention, mainly keeping with a focus on international corporations, expatriates, and managers (e.g. Beaverstock, 1990; Beaverstock, 1991; Beaverstock & Smith, 1996; Koser & Salt, 1997; Mahroum, 1999; 2001) as few explicit policies for attracting skilled migrants were in place yet in European countries, outside of internal corporate recruitment mechanisms. The UK leads Europe in terms of adopting the first large-scale skilled migration program in 2003⁵ and hence has the most literature available on skilled migration and its impact. Other research looks at comparisons, particularly between the US and Europe for attracting skilled migrants (Cervantes & Goldstein,

⁴ Discussion of skilled migration for services such as health care or education are not included here; for a broad overview on healthcare, see Dumont & Zurn (2007)

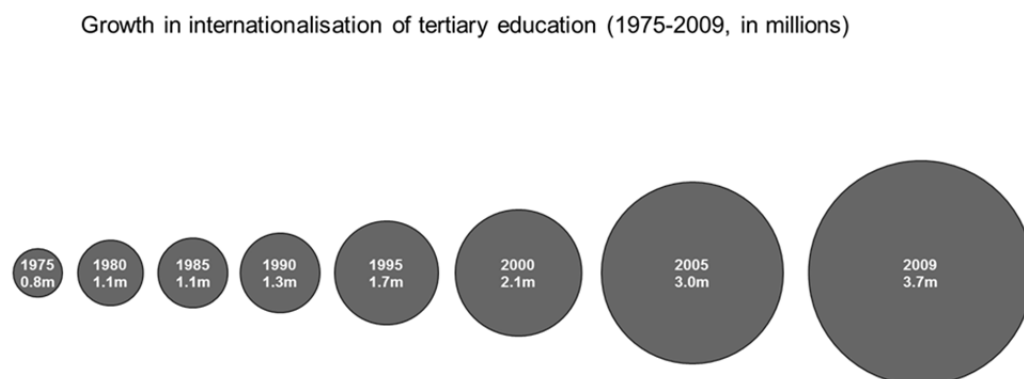
⁵ The UK policy towards skilled migration is relatively recent, although there have been previous skilled flows such as for doctors and also given the diversity of the UK population (such as post-colonial Indian migration). Up until 2003, when the UK started a policy to attract highly skilled migrants, there was nearly a void of policies to attract or even allow skilled migrants to come to Europe outside of the internal mechanisms put in place by multinational corporations and other businesses (and various bilateral agreements, for instance for health care workers). Iredale (2008) explains that the UK's policy then allowed 'individuals with special skills and experience to immigration, initially for a year but with the opportunity to renew. [...] This is the first time in nearly three decades that foreign workers, other than EU member nationals, have been able to enter the UK without guaranteed employment,' (p. 160-161).

2008; Peri, 2005) or on the general policy setting in Europe (Zimmermann, 2005). Other topics of research interest in Europe include scientific mobility (see e.g. Ackers, 2005a; 2005c); employment of immigrants in the IT industry (Leung, 2001); high-skilled employment of individuals from new member state nationals after EU-enlargement (Csedo, 2008; Ferro, 2004; Guth & Gill, 2008; Liversage, 2009); and topics related to return migration of various types of skilled migrants (Fontes, 2007; Gill, 2005; Williams & Baláž, 2005), to name a few. Additional research on scientific mobility will be discussed later in this study.

Students as skilled migrants

Understanding recent trends in international student mobility is important for discussions of skilled migration for several reasons. First of all, there have been substantial changes in student mobility in the past two decades, from 1.3 million students in 1990 to 3.7 million in 1999, as shown in Figure 1.

FIGURE 1 LONG-TERM GROWTH IN THE NUMBER OF STUDENTS ENROLLED OUTSIDE OF THEIR COUNTRY OF CITIZENSHIP



Source: OECD and UNESCO Institute for Statistics.

Data on foreign enrolment worldwide comes from both the OECD and the UNESCO Institute for Statistics (UIS). UIS provided the data on all countries for 1975-95 and most of the non-OECD countries for 2000, 2005 and 2009. The OECD provided the data on OECD countries and the other non-OECD economies in 2000 and 2009. Both sources use similar definitions, thus making their combination possible. Missing data were imputed with the closest data reports to ensure that breaks in data coverage do not result in breaks in time series.

Source: OECD, Available at <http://dx.doi.org/10.1787/888932461617>

These changes have implications both for developing countries, where students with sufficient resources may use international education as a springboard to access better job opportunities either in their home country, the region they are from, or further abroad. It also has an impact on destination countries, as more countries aim to actively ‘attract’ international students (see Hawthorne, 2009; Kuptsch, 2006), which can occur even where more restrictive labor migration policies or labor market protection mechanisms are present. International students have also been

coupled into discussions of skilled migration, also linked to their contribution to a destination's knowledge economy (Kuptsch, 2006, p. 59) as part the potential future, skilled migration workforce in the country where they study (Mosneaga & Winther, 2013), and due to increased focus on defining 'skills' for relative migration policies (Raghuram, 2013, pp. 139-140).

Therefore, the growth in international student mobility also reflects broader institutional changes. According to Cervantes and Goldstein (2008, p. 333):

Until the mid-1980s, EU countries did not take any specific action to recruit foreign students in developing countries outside or beyond their traditional spheres of influence. During the 1990s, as private higher education providers have increased and universities were give more autonomy and greater financial responsibility (including the right to levy tuition in some countries), European countries have strengthened their efforts to recruit foreign students, especially from Asia.

Receiving international students is seen as an attractive policy option to a range of countries for diverse reasons:

- National demographic decline in combination with the growth of the knowledge economy means that there are expected future workforce shortages in key occupations;
- Individuals who have been educated in the national context are perceived as likely being a better fit for employers, and as already accustomed to the country, and therefore as suitable long-term skilled migrants;
- The possibility of international students paying higher tuition than locals/nationals has been seen as a way to contribute to financing education systems;
- The further internationalization of research systems and increasing research collaborations mean that internationalization is seen as improving research outputs. Furthermore, institutions are assessed on their internationalization, as a metric in national or international competitiveness rankings of universities. The number of international students is seen as an indicator of how attractive a university is and how integrated it is in international networks.

It is also important to note that while data on sectors of employment is not always be available and data on skilled migration tends not to be internationally comparable (given that they are often based on very specific qualifications for work or residence permits), there has been improved international data collection on international students, including some data by field of study. The US has long had an interest in this topic, collecting data on international students since 1948 and publishing them in the yearly *Open Doors* report, internationally comparative statistics are more recent (Institute of International Education, 2008; OECD, 2007). Given that international students may then become employed in the countries where they study, looking at changes and varying patterns, including both in the countries from which the students come from and the countries where they go to, may offer be a preliminary indicator of potential destinations and changes in skilled migrant labor.

International students in general, have been increasing across all continents since the year 2000, although not necessarily with consistent rates of increase across time, with the growth rates slowing some in 2009, after the economic crisis. The largest number of international students, nearly half come from Asia.

A few main trends characterize changes in international student mobility in the past decade (see Box 1), as explained below:

BOX 1 PATTERNS OF INTERNATIONAL EDUCATION ACCORDING TO UNESCO STATISTICS

(Data collected in 2010)

Top destination countries:

- United States (19%)
- United Kingdom (11%)
- Australia (8%)
- France (7%)
- Germany (6%)
- Japan (4%)

Top 3 destinations by region:

- Arab States: France (29%), United States (13%), United Kingdom (10%)
- Central and Eastern Europe: Germany (16%), Russia (10%), United States (8%)
- East Asia and the Pacific: United States (28%), Australia (17%), Japan (12%)
- Latin America and the Caribbean: United States (26%), Spain (15%), Cuba (11%)
- North America and W. Europe: United Kingdom (23%), United States (15%), Germany (8%)
- South and West Asia: United States (38%), United Kingdom (18%), Australia (11%)
- Sub-Saharan Africa: France (19%), South Africa (17%), United Kingdom (12%)

Top sources of international students:

- China
- India,
- Republic of Korea

Regions that host the largest number of internationally mobile students:

- North American and Western Europe (58%)
- East Asia and the Pacific (21%)
- Central and Eastern Europe (9%)

Source: <http://www.uis.unesco.org/Education/Pages/international-student-flow-viz.aspx>. Accessed 8 Dec. 2012

1. There are new destinations and patterns of student mobility. All OECD countries have seen an increase in the number of foreign students in the past decade (see also Table 4). A few decades ago, the US was the clear leader in hosting international students. However, the share of students going to the US has declined as new destination options emerge, from 28% in 2001 to 19% in 2011 (Institute of International Education). Previous destination choices were thought to be led mostly by institutional prestige in a few countries, such as the United States and UK, and language of study, with a strong demand to learn English, now the global language for many international activities. The language at the destination influences not only moves to English-speaking countries, but also accounts for the large numbers of individuals from French-speaking African countries studying in France, from Latin America studying in Spain. New study destination choices in Europe were further shaped through extensive marketing programs and government agencies with the task to attract foreign students, particularly in Germany from the 1990s and France and the UK in 1998 and 1999 respectively (Kuptsch, 2006, pp. 36, 44). Additionally, awareness built of low tuition in many European countries, for instance, in Austria, Germany, Finland, Sweden, and Norway. The start of Bachelor's and Master's programs offered exclusively in English in countries such as Denmark, the Netherlands, Finland and Sweden (OECD, 2012, p. 365), and later spreading to other European countries, further change study options for international students. Singapore and Malaysia, and more recently, China, have also been active in trying to attract more international students and other forms of 'talent.' These new destinations also attract a different student body; for instance, in Malaysia the leading countries of origin are far afield and include Iran, China, Indonesia, Yemen and Nigeria⁶. Supported by widespread air travel as well as more information and cheaper communication through the internet, patterns of international mobility are becoming increasingly complex. One argument has been that studying abroad is an important step in attaining a desired job later. Others have argued that studying abroad is becoming less elite, or rather more chances to study abroad for all students rather than just the 'best and brightest' (see Kamat et al., 2004, p. 11 for case of Indian students abroad).
2. There are rising numbers and proportion of Asian students, particularly from China, studying abroad and in OECD countries. China is the top country of origin for international students in all of the Anglo-Saxon countries (US, Canada, UK, Australia, and New Zealand), Japan, Republic of Korea, Germany, and is the second largest sending country for students in France. These statistics reflect the trend that Chinese students are aiming to access international academic locations, without being tied to geographic proximity or the destination's language. Indians are the second largest sending country to most of the Anglo-Saxon destinations (Canada is an exception) but make up a much

⁶ Data from Atlas on Student Mobility, <http://www.iie.org/en/IIE-Settings/C-Template-DropDownItems/Services/Project-Atlas/Malaysia>, Accessed 4 March 2015

lower percentage than Chinese students in most OECD countries (see Table 5), despite that both are populous countries of more than a billion people.

3. Europe hosts the most international students of any continent (over 1.6 million in 2010), and more than double the amount of international students in North America (over 880,000 in 2010). The UK, France and Germany are all among the top countries for numbers of international students globally. Intra-European flows shape an important part of changing student mobility. Some of this mobility in the EU is supported by the EU's Bologna Process (Teichler, 2012) to harmonize education across its member states. Furthermore, the EU has invested heavily in EU-sponsored study abroad programs such as Erasmus, Socrates, to promote further student mobility in Europe. The majority of mobility among doctoral graduates from Europe has been to other European countries. In addition, the expansion of the EU's territory to include many countries in Central and Eastern Europe in 2004 and then again in 2007 has also likely had a significant impact on the changes in student mobility patterns. Individuals from these countries now have the possibility to move freely throughout the EU, and the United Kingdom has since become a top destination choice, particularly for individuals from the Baltic States (Lithuania, Latvia and Estonia) and Poland. However, much intra-EU mobility reflects students going to bordering countries or to those with linguistic similarity to their own country (for example, between Czech Republic and Slovakia; from Romania to Italy, given similarities in their respective languages; or native German-speaking students going to Germany, Austria, or Switzerland)⁷. Although various patterns of EU mobility have been observed, the effects of these moves on employability in the country of study, the home country, and elsewhere are not well understood.

Academic literature: Student migration in Europe

The topic of student migration in Europe in recent years falls into a couple of strands. One strand of literature addresses the policy changes that have increased student mobility in Europe, including changes that influence international students' visa policies and rights to work (Suter & Jandl, 2006), university recruitment initiatives abroad and the start of English-language programs in many European countries (Kuptsch, 2006) and intra-European study abroad or student mobility programs, such as Erasmus, supported by the EU (King & Ruiz-Gelices, 2003; Teichler & Janson, 2007). The other strand of literature addresses individuals' personal and career motivations for migration to various destinations (Glorius, 2009; Guth & Gill, 2008; Williams & Baláž, 2005).

⁷ Location choices in this section are based on UNESCO's Global Flow of Tertiary Students map, accessed 12 December 2012 at <http://www.uis.unesco.org/EDUCATION/Pages/international-student-flow-viz.aspx>

TABLE 4 TRENDS IN THE NUMBER OF FOREIGN STUDENTS ENROLLED OUTSIDE THEIR COUNTRY OF ORIGIN, BY REGION OF DESTINATION AND ORIGIN (2000 TO 2010, IN REVERSE ORDER)

Foreign students enrolled by destination	Number of foreign students										
	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000
Africa	155,293	147,338	142,811	123,874	115,490	107,851	107,575	103,538	100,428	93,260	99,117
Asia	486,076	446,055	398,817	367,361	344,050	322,449	297,804	264,598	242,575	205,649	214,744
Europe	1,968,418	1,665,829	1,580,212	1,483,312	1,437,362	1,388,027	1,311,098	1,186,161	1,043,809	980,883	920,140
North America	880,427	850,966	809,943	728,190	733,051	738,401	712,292	712,296	695,806	576,059	569,640
Latin America & Caribbean	77,735	77,546	60,889	57,926	39,951	39,227	41,873	44,343	37,418	34,063	31,058
Oceania	350,013	335,305	298,176	283,573	258,696	251,904	240,531	219,191	202,023	136,728	118,646
Worldwide	4,119,002	3,707,756	3,459,354	3,198,201	3,069,790	2,982,588	2,843,695	2,648,636	2,444,223	2,146,686	2,071,963
OECD	3,181,939	2,838,027	2,646,999	2,534,414	2,446,164	2,373,011	2,272,064	2,092,527	1,904,154	1,647,622	1,588,862
EU countries	1,686,306	1,413,462	1,322,936	1,313,343	1,257,612	1,201,503	1,152,244	1,036,527	895,903	844,627	806,286
<i>of which in EU21 countries</i>	1,647,730	1,378,961	1,287,768	1,285,443	1,231,028	1,174,107	1,124,315	1,010,002	869,944	813,471	776,672
G20 countries	3,418,367	3,040,151	2,849,469	2,632,351	2,551,098	2,488,585	2,369,403	2,225,874	2,049,207	1,793,070	1,718,429

Source: OECD Education at a Glance 2012, p. 381 Table C4.6

TABLE 5 SHARE OF INTERNATIONAL/FOREIGN STUDENTS IN SELECT COUNTRIES, AS TOTAL %, INDEX OF GROWTH SINCE 2000, AND SHARE OF INDIAN AND CHINESE CITIZENS, 2008

	Percentage of foreign students (defined as not having citizenship of that country) in select countries in 2008			% of international students from India and China in tertiary education	
	2008	2000, 2008	2008	2008	2008
				INDIA	CHINA
	% of foreign students in total tertiary education	Index of change in the number of foreign students, total tertiary (2000 = 100)	% of foreign students in advanced research programs	% of students from India	% of students from China
	%		%	%	%
<u>Traditional "Immigration" Countries</u>					
Australia	23.6	218	33.8	11.5	25.0
Canada	13.1	196	38.6	3.5	22.7
New Zealand	24.4	726	46.9	13	31.2
United States	n/a	131	n/a	15.2	17.7
<u>Europe</u>					
Belgium	12.2	109	31.2	0.7	2.5
Denmark	8.3	149	16.5	2.4	12
Germany	10.9	131	n/a	1.8	12.4
Ireland	7.2	173	n/a	3.4	8.4
Netherlands	6.8	291	n/a	0.2	5.4
Spain	3.6	255	24.0	0.1	0.3
Sweden	8.5	135	23.7	3	8.5
Switzerland	20.3	175	45.9	0.5	0.9
United Kingdom	19.9	151	47.7	7.7	13.5
France	11.2	178	39.8	0.4	8.6
<u>Asia</u>					
Japan	3.2	190	16.9	0.4	61.6
Korea	1.3	1195	6.6	1	75.8
OECD average	8.5	263	21.1	n/a	n/a
EU19 average	7.6	220	18.6	n/a	n/a

Notes: International student data not available for France, defined only as foreign students; n/a indicates where data was not provided in OECD'S 2010 Education Outlook

Source: OECD (2010). *Education at a Glance*. Paris: OECD; Data for 2008 for India and China from, p. 328-329

MIGRATION THEORY AND APPROACHES RELEVANT TO ASSESSING SKILLED MIGRATION

Skilled labor migration represents largely uncharted territory in modern migration theory (for theoretical discussion of approaches relevant to professional movements see Koser & Salt, 1997). Given the relative ‘novelty’ of skilled migration research, theoretical discussions of skilled migration largely borrow from the interdisciplinary theoretical perspectives that are used for other forms of migration, particularly low-skilled and other forms of labor migration. There is not one main theory that has been developed and adopted for skilled migration itself, although various typologies are being formed (e.g. Abella, 2006; Iredale, 2001; Mahroum, 2001).

Migration, with its multiplicity of actors, motives, and time and place contexts, has been difficult to theorize. Theory must assume a possibility of continuity and consistency. In other words, theoretical models should be applicable across a wide range of situations and with certain assumptions holding as relatively constant. Yet, migration processes are largely contingent on the macro-economic, political and legal environments, determining who is allowed to go, to where, when, and why, and therefore in some ways binding the theories to the here-and-now. The types of migrants are often controlled by quotas for either nationality or other individual criteria. Policies towards highly skilled migration are no exception. Countries with fairly open systems, the US, Australia, and Canada, all set quotas on various forms of visas for skilled workers. These quotas are often revised, either expanded or contracted, to meet the current demand. Hence, the observable pieces of migration, those which most theories are based upon, are often context bound, while this context seems to be continually shifting, as new policies are past, plus it takes time to see the impact of former policy. Such shifts are not limited solely to policies for high-skilled workers, but apply to policies for immigrant classes in general.

Migration theory has excluded analysis of temporary workers or students, an important category for highly skilled labor migration. For example, Malmberg (1997) argues, “Migration is often defined as a permanent and long-distance change of place of residence, as a short-distance move is regarded as local mobility, and moves of short-term residents are regarded as temporary mobility” (p. 23). As discussed in the introductory sections, skilled migration has largely occurred, at least initially, through temporary visas such as the H1B visa in the US. Hence, the analysis of skilled migration theoretically presents a few challenges to existing migration theory.

While this first section outlines problems with defining skilled migration, limits of temporality, and questions of longer-term effects beyond the immigrant himself, the next section will place skilled migration within existing theoretical frameworks. As also outlined in other chapters, migration theory as relates to labor migration has occurred within various disciplines. The most frequently applied theoretical frameworks used build from concepts related either to economic restructuring or individual determinants for migration. This section primarily outlines economic theory as applied to labor migration in general, and skilled migration in particular focusing on those that look at macro-level effects, including neo-classical economics arguments on wage effects and job displacement, dual labor market, and globalization theories, as well as micro-level (individual) determinants of migration and a brief discussion of social networks.

Neo-classical economics and skilled migration

Given that skilled migration is a form of labor migration, it is important to place it within the macro-economic theoretical context. Economic theories, and especially neo-classical economics, have been central to much migration theory in general. Neo-classical economic theory is based on the assumption that free competition leads to the greatest market efficiency and that individuals will move to areas where they can maximize their own well-being. Within the neo-classical framework, protectionist legislation for both capital and labor is viewed as impeding competitiveness (Rodrik, 2001). Additionally, neo-classical economics assume that general equilibrium can be reached. In terms of immigration, this then would lead to the assumption that if full mobility was possible, then markets would become more balanced and wage disparity between regions would diminish. More than just a theoretical notion, the idea is also applied in practice, for instance through the premise of the ‘common’ or ‘single’ market in the European Union, whereby the benefits of the EU are seen to stem from free mobility of capital, goods, services and, persons across the EU member states.

Neo-classical economics have been broadly applied to migration and remains the core of much migration theory and policy (even though there is much critique that it is too rational and individualistic) both on the micro- and macro- levels. For one, they have been applied on an individual level (to answer the more micro question of why people stay or go) via push-pull models, with economic concerns often considered one of the primary root causes “pushing” people to migrate to destinations with better opportunities or higher wages. Push-pull models were later modified, to include non-rational personal factors and intervening obstacles (Lee, 1966). Using the definition of Dorigo and Tobler (1983), “The push factors are those life situations that give one reason to be dissatisfied with one’s present locate; the pull factors are those attributes of distant places that make them appear appealing” (p.1). This formulation of push-pull model is often used on the national (or regional) level, although it implies an understanding of individual motives as well as assumes a rational approach. More recently, it has further been applied to advocate and better understand global economic integration. As Zolberg (1989) notes, “One of the sharpest contrasts between the old and new literatures is the conceptual shift from a view of ‘ordinary’ international migration as the aggregate of movements of individuals in response to different opportunities, to a view of this process as a movement of workers propelled by the dynamics of the transnational capitalist economy, which simultaneously determines both the ‘push’ and the ‘pull.’” (p. 406-407). In this formulation, supply is the “push” factor, while demand is the “pull.” The equation of push-pull models with supply and demand has interesting policy implications for highly skilled migration. Push-pull models can be applied on a variety of levels for better understanding migration flows. However, in general, push-pull models still give the feeling that we can predict migration flows based on various, mostly economic, factors. This in turn can lead to the assumption that migration may be “predictable,” a viewpoint that is often debated.

The equating of push-pull models with the concepts of supply and demand has interesting policy implications for highly skilled migration. Policies in OECD nations towards skilled migration often seem to assume that the supply is greater than the demand. The emphasis is typically on quotas to limit the supply allowed to enter, rather than on countries actively seeking out hot job

candidates to fuel their demand. For example, in Canada, quotas are set each year to determine the number of highly skilled migrants that will be allowed to enter and criteria are set as to who would meet these qualifications. DeVoretz (2003) notes that the Canadian government policies toward the highly skilled “amount to a ‘tap on, tap off’ approach: allow the target to fluctuate widely while officials imaginatively search out new source countries. When Canada was unable to meet its yearly target for skilled workers, it widened the entry gate for family-class entrants. Such imaginative tactics fail to obscure the fact that the supply of skilled immigrants to Canada is not infinitely elastic” (p.12). Similarly, studies from Australia have found that skilled migrants often have a list of destinations they would be interested in, and only come to Australia after doors to top choices, the US and Canada, have been closed, often due to restrictive policies (Cobb-Clark & Connolly, 1997). Therefore, while neo-classical theory may imply the availability of an endless flow of labor as needed, the reality may not hold up to this simplistic assumption.

Third, wages are often viewed as the critical element in both understanding labor migration and in applying neo-classical economic theory, with the work of Borjas having been particularly influential. Borjas (1994) found that there is little impact from skilled migration on the wages of American natives. However, in general the findings on the effect of skilled migration on wages, as well as job displacement, are inconclusive. Saiz (2003) notes that the impact of immigration is dependent on the skill characteristics of the immigrant versus the native population. Saiz argues that it is critical to include high-skilled labor as a factor to understand the impact of immigration on wages. He explains,

...if the composition of skilled and unskilled workers is different in the immigrant and native populations, relative wages will change. For example, if immigrants tended to be more highly skilled, this would increase the relative supply of highly skilled individuals, reducing wages for the highly skilled and increasing wages for low-skilled workers. In reality, economists have worried about the potential impact of immigration on *low-skilled* natives (p.16-17, italics original).

In other words, knowing the composition of immigrant qualifications compared to the native population is necessary to understand impact of migration (for a more detailed discussion see also Borjas, 1989; Ghosh, 2005, pp. 166-167), particularly as related to wages, and impacts how migration is interpreted and theorized.

The dual labor market, world systems, immigration, and global cities

Turning from general ideas of globalization and mobility, national economic restructuring has also become part of immigration theory through the dual labor market theory and the global cities thesis. The dual labor market theory (Piore, 1979) ascertains that there is a division of labor based on shortages, with current economic environment is made up of a primary sector of high-skilled jobs and a secondary sector of low-skilled, labor-intensive jobs with few opportunities for advancement. The dual labor market theory is considered to be “non-neoclassical” in that it assumes that institutions and discrimination keep people from moving out of the low waged, secondary sector, and hence the market will not necessarily by its nature reach

equilibrium and equality. World systems theory (Wallerstein, 1974) also contributes to debates on immigration as the theory posits that skilled labor will move from the periphery, or developing countries, into the core, developed economies.

These elements of the dual labor market theory and global systems theory are also applied to immigration and concerns about internationalization/globalization via Sassen's global cities thesis. Sassen (1991) looks at the increasing communications interconnectivity of cities and notes that industries in cities have shifted from Fordist, factory production, to a more globally interconnected knowledge society. Sassen sees this as creating a divided economy and creating similar divides within the population of cities. In this view the city is marked by an increasing polarization between the high-skilled workers and with low-skilled workers providing services to cater to the needs of the higher skilled knowledge workers, often through the informal economy, of which immigrants play a large role.

Individual-level: Determinants of migration and migration decision-making

Studies on the reasons for moving, often called the determinants or drivers of migration, are not new and are a key concern of migration research. A good overview of this research and the related conceptual issues can be found in de Haas (2011).

Discussions of the individual determinants of migration have been considered to be important, particularly with the growing focus on the need of countries to 'attract' skilled migrants, given the sense of a 'global competition for talent' as well as due to the views that skilled migration can lead to human capital development in the way of new skills and knowledge and improved international contacts.

While push-pull models have contributed to this discussion, there are also other important theoretical developments. Chiswick (1978) first discussed motivations of high-skilled immigrants to the US, showing a 'self-selection' that is beneficial for the receiving economy. Although there has been a sense of self-selection leading to higher qualifications of migrants compared to their native population (Borjas, 1989; Carrington & Detragiache, 1998), skilled migration literature currently tends to present individuals as 'talent' to be wooed and lured to various countries. In this light, models of migration decision-making are important not only in anthropological and sociological discussions, but also for the purpose of policy-making.

The literature on the determinants of migration is quite fragmented and new determinants emerge via different case studies. In general, it has been argued that it is not only wages that impact migration decisions among the highly skilled, but also greater career considerations including the reputation of the company where the individual is employed. The development of skills has also been seen as crucial, with gaining competency in English or other languages as one of the drivers for educated individuals to move abroad. Beyond career considerations, other authors have argued for the importance of place as magnets, building again on the theoretical premises of the global cities theory as well as lifestyle preferences of individuals (Ewers, 2007; Florida, 2002; 2005). Next, family considerations should also be considered, as pioneered by the new economics of labor migration (Stark & Bloom, 1985).

Network theories: Migration systems and the role of social networks

Network theories have also been applied to skilled migration. Meyer (2001) looks theoretically at the role of networks for high skill migrants in particular. He argues that a focus on ‘brain drain’ has led to a predominantly economic focus in the study of skilled migration (p. 94-95). Meyer stresses the importance of analyzing knowledge networks for understanding skilled migration beyond notions of just supply and demand and that the focus on networks shows more interconnectivity between these two aspects and allows for more balanced discussion of not only brain drain, but also brain gain. Saxenian (2002) focuses on similar aspects by highlighting the role and development of such diaspora or transnational networks among Indians and Chinese working in the Silicon Valley. As noted earlier, this example has become well-cited and influential in the discussions of benefits of skilled migration on whole. Kuznetsov & Sabel (2008) argue that networks are not only important for migration chains for low-skilled workers as highlighted by Piore (1979), but that for high-skilled migrants as well, ‘migration chains become open mobility networks – means for discovering where to go to learn how to prosper in the reorganizing economy’ (p. 89). According to these authors, the networks are useful for sharing information for skills development, recruitment, and to enable and facilitation contributions to the home country, in the form of not only remittances but also other forms of development. Beyond the role of social networks, Kuznetsov & Sabel also discuss changing economic structures and networks of firms in the global knowledge economy.

While discussions of ‘networks’ in migration theory really encompass several different phenomenon ranging from recruitment practices and systems, chain migration, international economic systems for production and division of labor, and transnational social connections among immigrants (see Rindoks, Penninx, & Rath, 2006 for a discussion of economic implications of networks for migration to Europe), the skilled migration literature so far has predominantly focused on the last aspect related to social and professional networks of skilled migrants. In an assessment of the global competition for talent, the OECD (2008) particularly focuses on policies for supporting ‘scientific diasporas’ through websites and organizations as one of the main ways to promote links among scientists abroad in order to support scientific development in the home country.

LOCATION CHOICE

Micro-level: Factors influencing an individual’s location choice

Migration drivers on the individual level as linked to recent globalization and institutional changes have scarcely been discussed. Much of the research discussing the global competition for talent assumes that the US will be the top destination choice for most skilled migrants, followed by the UK (see e.g. discussion in Boekholt, Edler, Cunningham, & Flanagan, 2009, pp. 3-4). This is based on factors such as economic strength of these countries, the English-language environment, past immigration creating more diverse and/or open societies, and the competitiveness of their universities and companies. Location choice is also expected to involve rational choice, the assumption that individuals are making a conscious, comparative mental checklist of the pros and cons of each place. While this process does not always play out, the

more general assumption is that individuals are searching for the place with the best returns on their human capital investments. One of the main barriers in understanding the extent and form this really happens is that little research examines the individual drivers of skilled migration in a framework that fits into global context, without focusing analysis on a single destination. One exception is the work of Florida (2002, 2005). Florida's work has been influential in linking immigration, growth of creative and high tech industries, and place competitiveness to understand both the attractiveness of destinations and overall economic growth potential of various areas, mostly applied to cities and regions. Research on skilled migration drivers analyzing in multiple countries is also currently underway at IMI Oxford, but no papers had been published yet at the time of writing this chapter. Discussions and frameworks related to mobility of scientists in particular will be discussed in more detail in Chapter 6.

Meso-level: Company location choice

Other research that is relevant for discussing the global competition for talent focuses on where companies choose to locate. One research (Committee on Prospering in the Global Economy of the 21st Century: An Agenda for American Science and Technology, National Academy of Sciences, National Academy of Engineering, & Institute of Medicine, 2007, pp. 3-4) conducted in the US found that multinational companies decide where to locate based on the reasons listed below in Box 2.

BOX 2 CRITERIA FOR MULTINATIONAL COMPANIES TO CHOOSE A LOCATION FOR OPERATIONS

- Cost of labor (professional and general workforce).
- Availability and cost of capital.
- Availability and quality of research and innovation talent.
- Availability of qualified workforce.
- Taxation environment.
- Indirect costs (litigation, employee benefits such as healthcare, pensions, vacations).
- Quality of research universities.
- Convenience of transportation and communication (including language).
- Fraction of national research and development supported by government.
- Legal-judicial system (business integrity, property patent protection).
- Current and potential growth of domestic market.
- Attractiveness as place to live for employees.
- Effectiveness of national economic system.

Source: Committee on Prospering in the Global Economy of the 21st Century: An Agenda for American Science and Technology et al. (2007, pp. 3-4)

As the list compiled by the National Academy shows, among the thirteen factors found, five of them relate to the availability of quality of individuals and research in the area, whereas most of the other drivers relate to costs.

More recent research suggests that companies are increasingly concerned about the ability to find a suitable workforce, whether in advanced markets or developing ones. According to research done by Deloitte the *top* concern of companies interviewed was “competing for talent globally and in emerging markets” (Eggers & Hagel, 2012, p. 33). A study by the World Economic Forum and Mercer Consulting (2012, p. 106) found similar results, but makes even stronger statements on the importance of talent for multinational companies’ location decisions as quoted below:

- “Among the 41 factors that organizations used to make actual site selection decisions, talent availability was the only factor important in virtually all cases (over 95% of decisions).
- After talent availability, talent costs, talent quality and the competition for talent were the next most often used criteria in making site selection decisions.
- Not only was talent availability factored into more site selection decisions (over 95% of decisions) than cost considerations (82% of decisions), but availability of a qualified labor pool was weighted more heavily in the decision criteria (31% on average versus 28% for all cost considerations).
- The importance of talent availability, cost competitiveness and talent quality to site selection decisions showed the widest variation among all factors, indicating that companies often trade off among these key talent factors when making location decisions.
- While talent availability factors into almost all location decisions, there is no ‘standard’ weighting of criteria employed by every organization. Instead, decision criteria reflect those issues that are essential to the business success of the individual organization.”

These results were reflective of businesses of various types and may be even stronger when limited to innovation-based activities. The European Competitiveness Report (European Commission, 2010, p. 103) stated that differences in costs have been found to be less important for the location of R&D and innovation than it is for manufacturing. The availability of skilled personnel and linkages within innovation networks are more essential. A study on the offshoring of science and engineering activities (Manning, Massini, & Lewin, 2008) also found, “Access to qualified personnel” as increasing as a decision-making factor from 42% of companies surveyed in 2004, to 54% in 2005 and to 66% in 2006 (p.36). As shown in the previous chapter focusing on competitiveness, skills and talent are becoming an important part of business decisions.

NEW PARADIGMS IN SKILLED MIGRATION: SKILLED MIGRATION, GLOBALIZATION, AND COMPETITIVENESS

As discussed in the preceding sections, skilled migration research largely borrows from other existing migration theories; nonetheless, new paradigms are developing, which seem to largely draw on economic geography, particularly given the rising attention turned towards the knowledge economy. Theoretically, the relationships are discussed in new growth theory (Romer, 1990), as an alternative to neo-classical economic explanations; however the ideas are typically used more implicitly and few analyses on skilled migration have cited this theory directly. Immigration policy towards the highly skilled has been largely focused on filling the shortage of IT workers in the mid-1990s and early 2000s and hence is intertwined with other national policies for boosting technology and international competitiveness (Mahroum, 2001, p. 27). Generally, these perspectives can be summarized as discussing relationships between skilled migration, globalization, and competitiveness. Within this discussion, there are two main lines that hold importance in current skilled migration literature, including that which continues to emerge in Europe:

1. Skilled migration is presented as a ‘race’ or ‘competition’ for global talent or a ‘battle for the brains’ – Goal of ‘attracting’ skilled migrants to Europe, particularly for the knowledge economy
2. Skilled migration as a contributor to economic and human capital development – Human capital theory and brain drain theory are closely intertwined in research (for a good overview of past research, see Cañibano & Woolley, 2015), even developing around the same time in the 1960s. In more recent decades, there has been a move to also use human capital to discuss circular migration, as a way to mitigate the brain drain in developing (sending) countries, especially in healthcare and education sectors, while promoting knowledge transfer as benefit of skilled migration for scientific and technological sectors.

The increasing attention to skilled migration for the knowledge economy, and particularly for the IT and software industries, has not only shifted the paradigm on the need for skilled migration as an economic benefit, but has also tilted the scales in the debate on the effects of skilled migration for developing countries (as sending countries). In the 1960s and 1970s, ‘brain drain’ became a concern. This debate was largely linked with the loss of scientists from Europe (and Canada) to the US and later also to the healthcare sector as countries such as the UK and United States hired doctors and nurses from developing countries. The loss of these trained individuals then aggravated the already strained health or other public services (especially in the case of developing countries) or limited scientific development. ‘Brain drain’ of scientists to the US has long been, and still is, considered to be a barrier to scientific advancement. However, different employment patterns and immigration flows, including return migration, gained attention in the IT and other knowledge-based sectors in the 1990s and 2000s. As a result, skilled migration is now seen as offering many potential advantages for developing economies. Table 6 from Guellec & Cervantes (2002), highlights the effects, as shown in Table 6. As mentioned earlier, the Silicon Valley not only became recognized as having a significant portion of skilled Indian and Chinese (Mainland China and Taiwan) contributing to its workforce, but also as contributing to

positive ‘knowledge spillovers’ when these individuals returned to their countries of origin and contributed to the growth of the knowledge economy there as entrepreneurs and as individuals with personal networks in the US or other countries, contributing to the expansion of markets in one or both locations (Kuptsch & Pang, 2006; OECD, 2002). Hence, the IT industry seems to have been perceived as a sort of gold standard for the positive impact of skilled migration and hence adds fuel to the concept of the global competition for talent.

Given that much skilled migration is seen as temporary, there is a greater likelihood of return migration and discussions of ‘circular migration’ have emerged as a core part of the skilled migration literature as well as in policy discussions. This literature emerged largely in light of contributions of Chinese and Indian high-skilled workers to new business and sectoral development in their countries of origin. The concept of circular migration has come into focus with skilled migration seen as a way of advancing human capital and knowledge transfer. The paradigm of ‘circular’ migration also debates previous perspectives that looked at the effects of emigration of skilled individuals as causing a permanent loss of qualified labor in the form of a ‘brain drain’ with the (often already privileged) receiving society experiencing a ‘brain gain.’ However, implicit in discussions of circular migration is an underlying expectation that skilled migration *should* primarily encompass temporary labor movements. Circular migration is often used to argue for ‘improved’ or ‘win-win’ outcomes, although it should be noted that the benefits can be overstated as actual results depend on both personal and structural factors in various destinations. There has to be sufficient development of the sector in question and general infrastructure for skills to be utilized upon return. Furthermore, the circular migration focus can suggest that mobility only takes place between two countries. However there are now more destinations, with skilled movements not only happening to advanced economies, but also to emerging ones. In other words, there seem to be increasing options for highly-educated individuals to move to or among various countries. While individual migration choice cannot be said to be purely rational, there is still a need to better understand which destinations are even considered as options within this decision-making process. These concerns are also addressed, although generally not systematically, in discussions of the ‘global competition for talent.’ Furthermore, skilled migration is often assumed to be a win-win situation, with economic benefits for both the migrant and the receiving country. Although negative impacts have also been discussed, these are typically only from the angle of the sending society, focused on the risks of ‘brain drain.’ In policy circles, as reflected for instance in the papers for the Global Forum on Migration and Development, skilled migration is often presented a win-win-win solution, meaning that the individual in addition to the sending and receiving countries also have substantial gains in skills or income. Yet, the combination of changing flows of people and a lack of data means that we likely only have a partial picture of the true impacts of skilled migration for the receiving country as well, with most of the information based on return migrants from the US IT sector moving back to either India or China. Other studies on return migration of skilled migrants to developing countries show varying success in re-integrating into the labor market, based on various structural factors ranging from an essential prerequisite of political stability and adequate infrastructure to specific factors regarding the unemployment levels and employment practices, such as the need to have close contacts to find work.

TABLE 6 ECONOMIC EFFECTS OF SKILLED MIGRATION

SENDING COUNTRIES: POSSIBLE POSITIVE EFFECTS	RECEIVING COUNTRIES: POSSIBLE POSITIVE EFFECTS
<p>Science and technology</p> <ul style="list-style-type: none"> • Knowledge flows and collaboration, return of natives with foreign education and human capital, increased ties to foreign research institutions • Export opportunities for technology • Remittances and venture capital from diaspora networks • Successful overseas entrepreneurs bring valuable management experiences and access to global markets <p>Human capital effects</p> <ul style="list-style-type: none"> • Increased incentive for natives to seek higher skills • Possibility of exporting skills reduces risk/raises expected return from personal education investments • May increase domestic economic return to skills 	<p>Science and technology</p> <ul style="list-style-type: none"> • Increased R&D and economic activity due to availability of additional highly skilled workers • Entrepreneurship in high-growth areas • Knowledge flows and collaboration with sending countries • Immigrants can foster diversity and creativity • Export opportunities for technology <p>Higher education systems</p> <ul style="list-style-type: none"> • Increased enrolment in graduate programmes/keeping smaller programmes alive • Offset ageing of university professors and researchers <p>Labor market</p> <ul style="list-style-type: none"> • Wage moderation in high-growth sectors with labor shortages • Immigrant entrepreneurship fosters firm and job creation • Immigrants can act as magnets for accessing other immigrant labor (network hiring effects)
<p>SENDING COUNTRIES: POSSIBLE NEGATIVE EFFECTS</p> <p>Human capital effects</p> <ul style="list-style-type: none"> • ‘Brain drain’ and lost productive capacity due to (at least temporary) absence of higher skilled workers and students • Lower returns from public investment in tertiary education (waste of national public resources) 	<p>RECEIVING COUNTRIES: POSSIBLE NEGATIVE EFFECTS</p> <p>Higher education systems</p> <ul style="list-style-type: none"> • Decreased incentive of natives to seek higher skills in certain fields, may crowd out native students from best schools <p>Science and technology</p> <ul style="list-style-type: none"> • Technology transfer to foreign competitors and possible hostile countries
<p>• POSSIBLE GLOBAL EFFECTS</p> <ul style="list-style-type: none"> • Better international flows of knowledge, formation of international research/technology clusters (Silicon Valley, CERN) • Better job matches, including: greater employment options for workers, researcher’s ability to seek work most interesting to them and greater ability of employers to find rare/unique skill sets • International competition for scarce human capital may have net positive effect on incentives for individual human capital investments. 	

Source: Guellec & Cervantes 2001, p. 86 (which cites OECD, expanded on the basis of Regets, 2000)

Filling in the research gaps

There are many limitations in the existing research on skilled migration in Europe. First, most studies are based primarily on national models of economic through a focus of differences seen by groups, generally based on either ethnicity or citizenship (foreign populations versus nationals). However, this perspective ignores the possibility that nationals too may move abroad and this can influence the availability of skilled labor locally. The perspective also assumes that it is easy to identify main ethnic or national groups working in a given field, which given the increasing scale of student mobility and skilled migration, may or may not still be true.

Furthermore, within Europe a political distinction, that has been carried over to some extent into research, has been made between ‘mobility’ of EU nationals across EU borders, including to live and work, and ‘migration,’ which technically only includes populations without citizenship from any of the EU member states, further limiting understandings on the extent to which cross-border skilled mobility really occurs. Third, with arguments of globalization of corporations and industries, as well as a change to a service economy, the movement of skilled migrants, and increasingly also university students, is typically encouraged. Yet, it is often mentioned that there is a lack of data on skilled migration flows lead to a rather incomplete analysis. This gap in the data has made it difficult to assess how recent policy developments and changing flows have had an impact on skilled migration to and from Europe.

Developing a more integrated framework for the ‘global competition for talent’ is a promising way to extend current knowledge of skilled migration processes and effects. Is there really a global competition for talent? What is really meant by this phrase? Building from the theoretical discussion given in this chapter, assessment of the individual words used in the ‘global competition for talent’ is helpful:

- **Global** – Recent increases in skilled migration in terms of occupations in focus, skilled migrants coming from more countries of origin, and going to new destinations, mean that a more ‘international’ rather than national assessment of skilled migration is helpful. While the US offers a leading example, it cannot be said to be a proxy for skilled migration patterns on the whole. There is a need to look at whether or not the ‘global’ competition occurs across all countries versus a limited subset both in terms of ‘sending’ and ‘receiving’ skilled migrants. Furthermore, in discussions of the ‘global competition for talent’ it has not been clear whether the global aspect refers to increasing demand across countries or whether it refers to the changing diversity in the workforce (implying that skilled migrants are now coming from a range of both developed and developing countries). Both of these aspects will be explored by focusing on one field of study, life sciences, in an international context.
- **Competition** – The word competition also suggests various strands of literature. Often, an assumption made in regards to the global competition for talent is that there are ‘winners’ and ‘losers’ in terms of overall economic performance and that the destination choices and numbers of migrants are reflective of this competition. There seem to be two main lines of reasoning influencing this discussion. The first interpretation rests on theories of economic competitiveness, as discussed in the previous chapter, and when

applied have led to various rank-orders in country performance. This interpretation also often implies the associations explained previously that have been made between skilled migration as a *contributor* to national competitiveness. The second interpretation rests instead on how *attractive* various places are for companies and people, assuming that countries, companies or universities are trying to find ways to make potential skilled labor or students choose them over other choices. This part is linked in part to marketing of places or study programs, for example, and more generally to the ways information about how opportunities in often far-away countries, spread. Four main ways the information spreads have been identified: networks, marketing, media, and personal experience. These two interpretations are interlocked but rest on different theoretical foundations, with the first being more macro-economic and the second looking at the effect of micro-level determinants as well as reputation.

- **Talent** – There are also discrepancies on how ‘talent’ is defined. One version would assume that anyone who is classified as a skilled migrant – either by education levels at a certain threshold, often defined as having a tertiary education or higher, or those with skills or working in occupations in demand – can also be considered to be ‘talent’ to be wooed. Another definition would instead focus more narrowly on individuals of exceptional ability – the ‘star’ scientists, big-name athletes, successful entrepreneurs, prominent academics and so forth.

These differences are more than just words – they represent different policy options for addressing the global competition for talent, with variations ranging from a restrictive to open approach to skilled migration. As argued by Peri (2005, p. 16):

... for advanced economies human talent may very well be one of the most important factors for growth and development. As scientific and technological progress is the recognized “engine of growth” in economies at the technological frontier (such as the U.S. and Europe), creative minds in the fields of science, engineering and technology have an incomparable role in advancing economic development and well being.

The global competition for talent is a useful phrase for assessing a number of institutional changes, as it can be conceptually applied across, the macro-, meso- and micro-levels and their intersections. Researchers, businesses and politicians have spoken of the global competition for talent, but analytic frameworks, business programs and policy guidelines for fostering positive effects are only beginning to emerge. On the macro-level, governments need to respond both to ensure the competitiveness of their country as a whole and to ensure workforce availability. Skilled migration is sometimes part of this strategy. It is important to realize that skilled migration levels vary immensely across countries in numbers, but growth to OECD countries has been observed. The global competition for talent has therefore emerged in discussions of institutional changes surrounding skilled immigration (see Kuptsch and Pang, 2006, OECD, 2008) as well as international student mobility (see Kuptsch, 2006). It is also influenced by policies and institutions that have an effect on R&D or the business environment (for overview of institutional issues, see Reiner, 2010, Dachs et al., 2005). On the meso-level within the topic of the global competition for talent, organizations, including companies, universities, research

labs, and others, are creating more proactive strategies to attract and/or retain the best employees internationally. In part, this aspect is reflected in discussions of ‘talent’ in immigration studies (Solimano, 2008) and a rapidly expanding discussion of ‘international talent management’ within the literature in human resources and related fields. However, the concept is also starting to gain broader policy attention (see, e.g. OECD, 2008, World Economic Forum and Mercer Consulting, 2012). The ‘talent’ perspective is promising as it links the needs of greater economic regions to both the needs of the organization as well as to the needs of the individual.

CONCLUSION

This chapter has argued that theory for explaining and understanding skilled migration is still being developed. Given the lack of standard definitions as well as frequently changing policies to support skilled migration, empirical evidence is still scant. Currently skilled migration research draws on other theories of labor migration, particularly push-pull models of individual movement and theories related to economic restructuring. However, new paradigms for research are emerging, mainly discussing skilled migration as a contributor to human capital development and knowledge transfer and the ‘global competition for talent’. While these elements have not fully been placed in a full theoretical framework, they have become implicit in much discussion surrounding skilled migration.

The 1990s was an important turning point in skilled migration policies in many countries and in media and policy discussions across the world and a basis was built for discussing a “global competition for talent”. Although skilled migration was common in earlier decades, the movements were less influenced by specific state directives, but rather from internal mobility in companies and particularly of managers in multinational corporations or from specific bilateral agreements, such as those found for health care workers. These movements were seen as unproblematic by governments in advanced countries and did not receive much policy attention, with the exception of concerns about brain drain and its impact on developing countries. However, the IT boom in the US and in the case of Europe, the desire to emulate this success (as indicated by the goals of the Lisbon Agenda), triggered discussions of ‘competitiveness’ and in growing the knowledge economy. The growth of the IT sector in the US had also become associated with skilled migration, and particularly due to the visibility of Indian and Chinese (main recipients of H1B specialty visas in the US, as is discussed in more detail in Chapter 2) IT professionals and engineers. As countries aimed to ‘catch up’ with the US growth, more attention was also turned to the US as a ‘magnet’ for foreign ‘talent,’ indicated not only in the presence of skilled labor in IT, but also in the high number of foreign nationals in the US higher education system, and particularly in science and engineering graduate programs. By the mid-1990s, discussions of ‘competitiveness’ had become part of the immigration discourse in Europe as more countries aimed to move from restrictive systems to selective systems, favoring (temporary) skilled migration and also trying to further advance the attractiveness of the university system and higher education for foreign students. At the same time, it also seems to have brought increasing attention the potential of ‘circular migration’ as a contributor to development and expanding demand for ‘talent’ from all parts of the world. Although policies and trends will continue to change due to the current financial crisis and changing economic

needs in general, the past forms an important backdrop for assessing the attitudes, beliefs, and experiences that have influenced policy decisions and mobility to date. There is reason to question how much the phenomenon of skilled migration is understood in the European or even global context and a strong need for new research to fill in these knowledge gaps.